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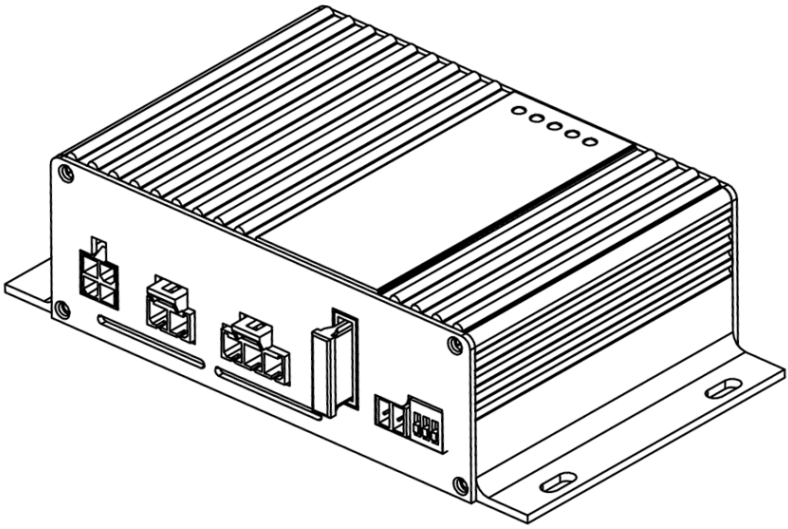


MPPT Solar Regulator

Installation & User Instructions

SXC300-12

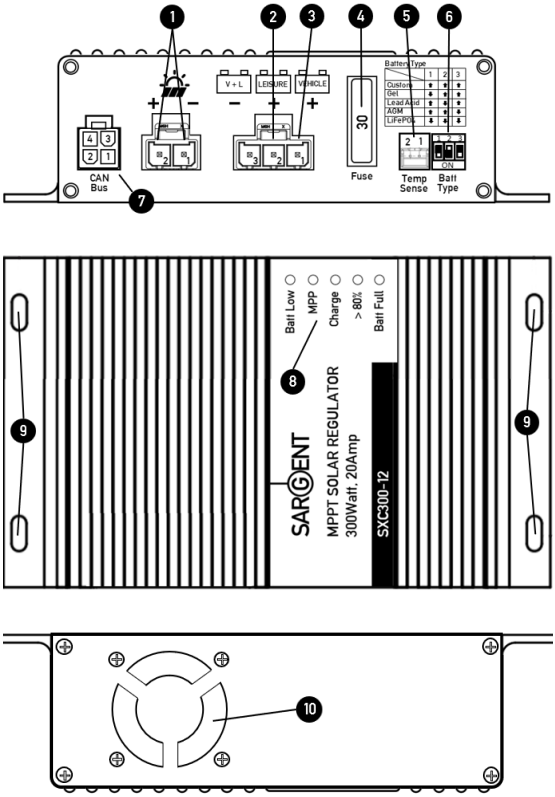
Contents

Overview

This solar regulator uses Maximum Power Point Tracking (MPPT) technology to extract the maximum possible energy from the connected solar panels. In this way it can typically harvest 30% more energy than standard solar regulators. The configurable output provides multi-stage charging to the leisure battery and is also able to trickle charge the vehicle battery to avoid starting problems.

Key Features

- Selectable charging for Flooded, AGM, Gel & Lithium batteries
- 3-Stage charging profile for fast effective charging
- Dual channel output charges Leisure & Vehicle batteries
- CAN Bus Interface to communicate with other equipment
- Protected against overload, short circuit & over temperature



1. Solar panel inputs
2. Leisure battery output
3. Vehicle battery output
4. Fuse (30 Amp)
5. Temperature sensor input (optional)
6. Battery type selection switches
7. CAN Bus interface
8. Charge Status indicators
9. Screw fixing points
10. Cooling fan

Installation

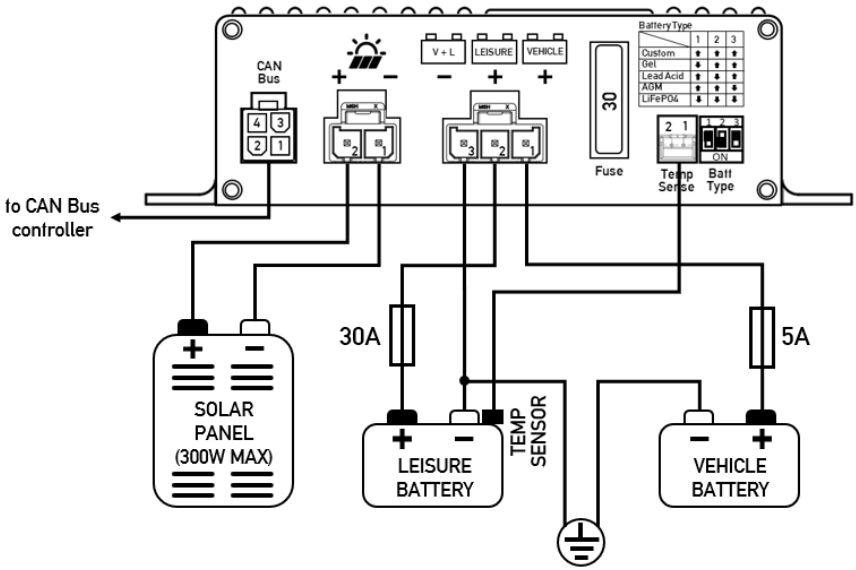
The regulator should be installed horizontally or vertically as close to the leisure battery as possible, ensuring the surrounding area is dust free and well ventilated. During operation the regulators cooling fan will exhaust warm air, so ensure there is at least 10cm clear around the unit at all times.

Wiring & Fusing

When fitting, try to keep cabling runs as short as possible and do not underrate, as this will lead to excessive voltage losses and reduced performance. Please refer to the table to select a suitable wiring gauge, length and recommended fuse rating.

Cable	Up to 2m	Up to 3m	Up to 5m	Up to 10m	Fuse
from Solar	1.5mm² / 15AWG	2.0mm² / 14AWG	2.5mm² / 13AWG	3.0mm² / 12AWG	-
to Leisure battery	3.0mm² / 12AWG	4.0mm² / 11AWG	-	-	30A
to Vehicle battery	1.0mm² / 17AWG	1.0mm² / 17AWG	1.0mm² / 17AWG	2.0mm² / 14AWG	5A

Connections



The charger can be purchased as a kit (Part: SXC300-KIT), which includes the mating power connectors and terminals, or alternatively these can be purchased directly from Sargent.

Description	Sargent Part	Molex Part	Qty
Receptacle Housing , 2-way	17484	200456-1212	1
Receptacle Housing, 3-way	17483	200456-1213	1
Crimp Terminal, Female	17482	76823-0343	5

Note:- Reverse connection of the battery may blow fuses and cause damage to the unit.

Temperature Sensor (optional)

With the optional temperature sensor fitted, the charger can adjust the rate of charge, depending on the ambient temperature. For example in winter the charge rate will be increased and in summer it will be reduced. It is recommended to install the sensor on the negative terminal of the Leisure battery or on the battery casing. Note:- The unit will use a default setting if the temperature sensor is not fitted.

Battery Selection

Before using the charger, ensure the correct battery type has been set using the selector switches. The 'Custom' setting allows battery charging parameters to be configured via CAN Bus

Setting	Battery Type
	Gel
	Lead Acid
	AGM
	$LiFePO_4$
	Custom

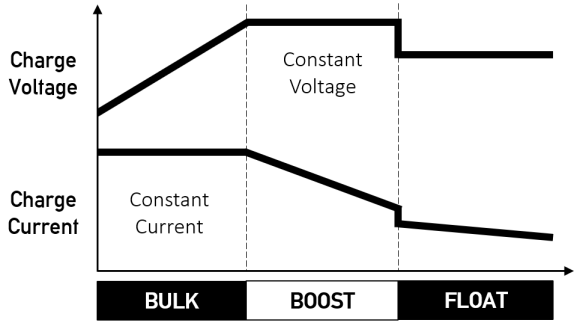
Note:- If the selection is invalid, all status indicators on the unit will flash.

CAN Bus Interface

The CAN Bus interface allows the unit to be monitored and controlled from compatible Sargent display panels.

Charging profile

Depending on the battery type selected, the 3-stage charging profile will be adjusted to maximise charging performance.



BULK The battery is charged with maximum current, whilst the voltage climbs steadily, until the boost voltage setting is reached.

BOOST The battery voltage is held constant while the current gradually decreases, until the battery is becoming full. By default the boost stage will not exceed 8 hours to prevent overcharging.

FLOAT The voltage of the battery will reduce to the float voltage setting and current will reduce to a trickle charge to help offset any self-discharge.

The following table shows voltages used for each battery type setting

Battery Type	Gel	Lead Acid	AGM	$LiFePO_4$	Custom
Boost charge	14.1V	14.5V	14.7V	14.4V	14.4V
Float charge	13.6V	13.4V	13.6V	13.8V	13.6V

Operation

The unit operates automatically to regulate power from the solar panel into a suitable charging voltage for the leisure battery and vehicle battery. When the solar panel is exposed to sunlight, the regulator will automatically start to operate and no further action is necessary.

Indicators

During charging, indicators on top of the unit will show the current mode of operation, as shown in the following table

Indicator	Flashing	Status
Batt low	On	Leisure battery voltage < 10.5V
MPP	On Fast	Regulator operating normally - Sun available at panel Regulator in Standby - No sun detected at panel
Charge	On Off Slow Fast	Normal Charging No Charging - Insufficient solar power Regulator over temperature Overvoltage at battery or solar panel
>80%	On Slow Fast	Battery 80% charged (Boost Mode) Regulator Over temperature Overvoltage at battery or solar panel
Batt Full	On	Battery 100% charged (Float Mode)
All	Fast	Invalid battery selection

Note:- During power-on, all indicators will flash for 1 second then go out and the fan will briefly run to confirm correct operation.

Specification

Model	SXC300-12
Power	300W
Solar input voltage	15 - 50V
Output voltage	13.6 - 14.8V
Output current (Leisure)	20A (max)
Output current (Vehicle)	2.5A (max)
Regulation method	MPPT
Standby current	16mA (max)
Efficiency	> 95%
Communication	CAN Bus
Dimensions (L x W x H)	84 x 118 x 41mm
Weight	407g

Notes

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